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that they were Warrau, which theory, however, he does not discuss and apparently does not accept. It seems to the author that the pottery found in the Tcip-tcip mounds indicates a culture higher than that of the Carib, and more advanced as art products than any thus far collected from the Warrau. He regards it as a localized or autochthonous development originally of South American origin, but belonging to the same great prehistoric insular culture found in the Antilles from South America to the Bahamas and Cuba. This culture had been submerged by the Carib in some of the smaller islands, but persisted into the historic epoch in the larger islands which Carib could not conquer.

The conclusion reached from a comparison of the objects from the Erin Bay midden is that while there is a general likeness in pottery from all the islands of the West Indies, there are special ceramic culture areas in different islands. It is also believed that the Carib had no extensive settlement in Trinidad, and that they came to the other islands long after agricultural people had developed on them, or were renegades from some of the islands where the uncertainty of crops drove them to become marauders on others.

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RELATIONS OF ABORIGINAL CULTURE  
AND ENVIRONMENT IN THE  
LESSER ANTILLES

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## RELATIONS OF ABORIGINAL CULTURE AND ENVIRONMENT IN THE LESSER ANTILLES

By J. WALTER FEWKES

In late years the geologist, climatologist, and oceanographer have largely increased our knowledge of the Lesser Antilles, and naturalists, especially students of fauna and flora, have made important contributions to what was known of the distribution there of animals and plants. The ethnologist and archeologist are now able to give a clearer picture than ever before of aboriginal culture history in the Antilles in pre-Columbian times.<sup>1</sup> In this wealth of material gathered by the specialists the student of the relation of culture history to environment will find a rich field for his studies.

That large part of modern geography dealing with the relation of the earth and man has hardly considered this material, possibly on account of its extent, or the probability that any generalization on what is now known would be premature, so rapidly are new facts accumulating in this field.

In the following pages the author has ventured to consider one aspect of the relation of Antillean culture history to environment, and has limited himself to the aborigines, or so-called pre-Columbian inhabitants, and those features of the physical surroundings that have directly affected them.

Among the influences that have powerfully affected man in the West Indies are geological features, climate, ocean currents and winds, fauna, and flora. Among geological influences may be mentioned contour and relief, extent of coast lines, stability and distribution of land that can be cultivated, and different kinds of soils or rocks. Climate has affected agriculture more than any other physical environmental condition by determining the animals and plants available for food. Currents and winds are powerful agents in distributing organic life and determining the direction of human migrations on the ocean.

*Physical Features.* The Lesser Antilles, with the exception of Trinidad and Barbados, resemble a chain of volcanoes, or their

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<sup>1</sup> The author will later publish an elaborate account of Antillean prehistoric culture based on the magnificent collection of West Indian Antiquities owned by George G. Heye, Esq., of New York.



summits, projecting out of the ocean. Some of these islands rise abruptly from the sea, while others have fringing coastal plains. Volcanoes are, from time to time, active, and igneous rocks predominate. The coast lines are continually changing and relief forms are not constant.

Fertile plains suitable for agriculture exist in many islands, and the shores of drowned river valleys present easy landing places for canoes or small craft, while submerged craters afford landlocked anchorage for larger vessels. Several of the islands are destitute of fresh water, while others have copious streams. In Dominica, the natives say, there are "as many rivers as there are days in the year," but the tufaceous rocks in other islands drink up the rain water before it forms a stream or gets to the sea. In islands having calcareous formations, evidences of former extension of the coast into the sea or elevations of the coast, due to volcanic or other agencies, are shown by the existence of living and semi-fossil genera of shells, echinoderms and corals high above the sea level. Changes in coast lines are common; and in the volcanic islands are abundant lava flows, one superimposed on the other, enabling the observer to measure the extent of the phenomena. The hard volcanic rocks supply material for stone implements; good clay on several islands invites the potter to her work. Sea shells, like *strombi*, have replaced stone for implements in islands like Barbados where there is no rock suitable for stone implements. The igneous boulders, being hard enough to resist rapid aerial or aqueous erosion, have preserved pictures cut upon them by the aborigines, but many of the rock cuttings were so shallow that they are either almost completely obliterated or barely legible.<sup>2</sup>

The longer axes of several of these islands extend approximately north and south, and, as they lie in the tropics where the trade-winds are constantly blowing from the northeast, their eastern side, or as it is called, the windward side, is almost constantly beaten by a heavy sea; on that side also the coast is much more eroded than on the western. On the latter side, however, the winds and waves not being so high, sandy beaches are more common and landing in small crafts is less difficult. The prevailing winds thus brought it about that the best sites for aboriginal settlements were on the lee sides of the islands, where the archeologist finds village sites, or middens, most abundant.

<sup>2</sup> Locally the boulders on which these pictographs occur are called "jumbies" or "altar" stones, the latter term implying a belief in their former use in sacrifices. The West Indian pictographs resemble those of Porto Rico on the one hand, and of British Guiana, on the other, and generally occur near the shore or on the banks of streams, convenient to landing places.



Natural caves occur in many of the islands, more especially those composed of soft calcareous rock or easily eroded tufaceous deposits. These caves, in some of the islands, as objects found near them show, were resorted to for mortuary and religious purposes. Many of the islands have no forests, few contain remnants of the original tropical jungles; others are destitute even of bushes; such an island as Antigua has no fresh water except that gathered in reservoirs.

*Climatic and Hydrographic Conditions.* The Lesser Antilles lie wholly within the tropics. Their temperature, however, is largely tempered by the ocean. The northeast winds blow so strongly that each island has two distinct climatic regions, the windward and the leeward, one under the régime of constant, cool ocean breezes and the other sheltered by highlands, with quiet water and low surf. As the islands have moderate elevation, the difference in temperature on the two sides does not profoundly affect the rainfall, although it has led to the concentration of a maritime people on the coast less exposed to surf raised by these winds.

The direction of the ocean currents has brought it about that, biologically, these islands are connected with South America, and we may suppose the original peopling of the majority of them was from that continent, either directly or indirectly. The great river, Orinoco, which discharges a volume of fresh water sufficient to render the Gulf of Paria, Venezuela, brackish, has had an important influence on the migration of plants and animals, especially marked in the fauna and flora of the southern members of the Lesser Antilles. Drifting logs that have floated from its delta to Barbados have no doubt carried reptiles, insects, seeds and even higher animals that would otherwise have been drowned. Floating trunks of trees, bushes and plants that could retain vitality in the salt water have been stranded on the islands. Paddles from Indian tribes dwelling in the Orinoco delta are, from time to time, found on the east coast of Trinidad. Ocean currents have likewise brought to the island organisms that live on the banks of the Amazon, and have, in that way, reached the Lesser Antilles from the land to the south rather than from lands to the west or north. But in the Greater Antilles, as Cuba, it is different; there the ocean currents set from the west, eastward, rendering these islands biologically allied to Central America rather than South America. The peopling of islands by man in early colonization follows much the same laws as that of plants and animals.

The South Equatorial Current crosses the Atlantic to the Caribbean Sea and, following the northeast and north coasts of South

America, impinges upon the shore, receiving what is discharged from large rivers and bearing its burden of life to its destination. There is little wonder that the Lesser Antilles, set like a net across its course, should capture some of the flotsam it bears. More than that, if the Gulf Stream can carry floating objects to Europe from the Gulf of Mexico, the Equatorial Current may have brought to the Lesser Antilles floating logs with clinging animals and plant seeds from the coast of Africa, across the Atlantic, not half the distance.

*Biological Conditions of the Lesser Antilles.* The land animals and plants, which practically supply the food of man, are largely dependent on the degree of heat or cold, moisture or dryness; in other words, on the climate of the region in which man dwells. The amount of heat and cold is due to elevation and latitude, ocean currents and prevailing winds, rainfall and other agencies. Moisture or dryness depends on the mutual relations of the earth, water, and air. The rainfall, land relief, nearness to the ocean, prevailing winds, ocean currents, and other causes, determine the character of the biota brought by ocean currents, winds or human agencies. This migration of the fauna and flora is partly voluntary, partly involuntary. Ocean currents have been perhaps the most effective agents in the involuntary transportation of plants and animals, but cultivated plants and domesticated animals have been carried by human agencies from one place to another. Such land animals as insects, lizards, and small mammals supplied considerable food, but there were no domesticated animals of size and the amount of food from terrestrial animals was never very large. The seas around the islands contain much animal food, as fishes, crabs, and mollusks, the last two being mainly collected from the shore laid bare by the high tide. Judging from the number of crab carapaces, and claws of the same, found in the middens on some of the islands, it would appear that crustacea supplied the aborigines with much of their food.

The importance of ocean currents, in the distribution of animal and plant life, has two aspects: (1) the regions of the adjacent continent to which the Antillean fauna and flora are related; (2) the animals and plants, occurring on these islands, that can be used as food. A distinction must be made between cultivated plants and domesticated animals brought by man, and those that have been transported by natural means, as winds or currents.

The food plants that played an important rôle in forming human culture on the Lesser Antilles in prehistoric times are the yuca or

manioc, the yam, potato, and various other roots. Maize may have been used as a food but not to the same extent as the roots above mentioned. The banana was made into a paste and dried in the sun; cocoa was grown by the aborigines, but not in great quantities. A favorite drink was an intoxicating liquor called the *ouycou*, manufactured from yuca meal which was fermented in large earthen jars. Most of these food plants were apparently brought by man from South America, his continental home. The flora of the Lesser Antilles is distinctly South American, and not allied to that of Central or North America.

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In the same way it may be said that the fauna of these islands follows the same law; its natural affinity being with the great continent to the south. Few if any animals were carried to these islands by man in pre-Columbian times and it may be supposed that those used by man as food found their way there by natural means or unaided by man. The small mammals, reptiles, birds, and insects are akin to South America rather than to the Greater Antilles or North America. Several instances might be mentioned to illustrate this statement, but the following is sufficient, in a cursory treatment. The natural distribution of animals in the Antilles, according to Sir Harry Johnston, is well illustrated by the serpent fauna of Cuba, as compared with that of the Lesser Antilles: "In their serpent fauna," he says, "the southern groups of the Lesser Antilles (Guadeloupe to Trinidad) are more 'continental' and South American than is the case with the Greater Antilles." . . . These last, be it noted, are absolutely unconnected, in the affinities of their reptilian fauna, with Florida and North America, but offer some relationship to southern Mexico and Central America. These indications as to past land connections or approximations are further borne out by plant, bird, spider, fish and mammal distribution showing that the Greater Antilles have had no nearer neighborhood with the North American continent since the middle of the Secondary epoch (if then); that their last ancient land connection (Early Tertiary?) was with Central and not with South America: and finally that they, to some extent, shared with tropical America a connection with, or approximation to West Africa, perhaps as late as the beginning of the Tertiary Epoch."<sup>3</sup>

As Johnston has shown, the relations of the bat fauna of the Greater Antilles (Cuba, Haiti and Jamaica) are important. According to this writer, out of twenty genera of bats only one is

<sup>3</sup> The Scenery of Cuba, Hispanola, and Jamaica. By Sir Harry Johnston. *The Geographical Journal*, June, 1909.



North American, three are peculiar to the Greater Antilles, and sixteen are found likewise in Central America.

*Culture of Aborigines on the Lesser Antilles.* Eliminating from our consideration Trinidad and Tobago, which belong culturally, as well as geographically, to the South American continent, we can detect traces of three distinct aboriginal cultures in the Lesser Antilles, viz.—(1) cave dwellers, or fishermen, hunters, fruit and root eaters; (2) agriculturists, “meal-eaters” (“Arawak”), who cultivated food roots by primitive methods; and (3) Caribs, a vigorous modification of the latter who obtained some of their food in the same way as the preceding, but lived mostly by raiding other islanders.<sup>4</sup>

It is probable that the most ancient aborigines of the West Indies inhabited caves, and it is known that survivals of these cave dwellers were mentioned in 1492 as inhabiting the western end of Cuba, the extensions on the western end of Haiti and Jamaica, which had become largely agricultural, and other islands. In many of these islands, however, traces of the cave life were even then archeological and legendary, but evidences of a preexisting cave life in all are almost universal. The agricultural or meal-eating culture was most highly developed in Porto Rico, Haiti and eastern Cuba, but traces of it existed in the Lesser Antilles, where the Caribs were dominant.

The inhabitants of the Lesser Antilles were more aggressive than those of the Greater Antilles, and among them a modification of the agricultural culture, called Carib, had been developed.

The derivation of Antillean man has been variously interpreted.<sup>5</sup> The available evidence seems to point to the conclusion that the original peopling of the Lesser Antilles was from South America, but we do not know whether, at the time it occurred, the Antilles were a part of that continent or of a much more extended island now partly submerged in the ocean. Early man may have inhabited the Antilles much earlier than is generally supposed, or at a time when those many likenesses in the biota of South America and Africa originated.<sup>6</sup> The aboriginal race had lived in Porto

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<sup>4</sup> The word “Indian” is applied by the present West Indians to the coolies, or laborers who were imported from India to work in the fields. As pointed out by Mr. Payne, in his “History of America,” the word “American” was applied to our aborigines up to the Revolution, but since that time it is generally used to designate a citizen of the United States. The present inhabitants of the Lesser Antilles call all prehistoric inhabitants of the island “Caribs” and all implements, pictographs, middens and pottery fragments are designated as “Carib.”

<sup>5</sup> The reader will note that nothing is said about the provenance of the first human colonists in the Greater Antilles.

<sup>6</sup> There is considerable literature on resemblances between freshwater fishes, insects and other animals of South America and Africa.



Rico and Haiti long enough to have evolved a highly developed neolithic stone age culture, as evinced by the perfection it attained in stone working, unsurpassed anywhere in America. But there is evidence that the earliest man was a cave dweller, and that he was followed by an agriculturist and, the author believes, that the Carib was evolved from the agriculturalist ("Arawak"?) as a direct outcome of a food quest which could only be satisfied by plundering neighbors.

There are several theories regarding the origin of the Caribs in the West Indies. It is held by some of the early authors that this race was an offshoot from North America, but this theory is now quite generally abandoned. Others have derived the insular Caribs from South American Caribs mainly on the ground of linguistic affinities and certain legends which are not wholly reliable. That there are linguistic relations of continental and insular Caribs goes without saying, but there are also linguistic likenesses between all the known Antillean languages and those of South America, and it is yet to be shown whether this differentiation of the Carib language occurred before or after their ancestors left South America. Sir E. F. im Thurn has derived the Guiana Caribs from those of the Lesser Antilles, instead of the latter from the former. The author suggests the theory of an independent origin of the Caribs of the islands and those of the continent and ascribes their linguistic and other similarities to ancestral racial likenesses.<sup>7</sup>

If the Caribs in the Lesser Antilles originated from South America and were racially the same as those of the Orinoco, how does it happen that some of them did not settle in Trinidad, which lies between the Carib islands and Venezuela? The same implied objection, slightly modified, may be made to im Thurn's theory.

It may be that the indefinite use of the word Carib by some early writers has led to a grouping of all marauders into an unnatural group. Archeological objects found in these and other Lesser Antilles indicate a sedentary agricultural race of which the Caribs may have been renegades, not a distinct race culturally.

*Cave-dwelling Culture.* There are evidences that an original cave culture, which preceded the agricultural survivors in the Lesser Antilles, continued in the West Indies even when the inhabitants had practically passed into the agricultural state. As among the aboriginal pueblo people of our Southwest, cave dwellers

<sup>7</sup> The designation Carib, according to Oviedo, is an Arawak word meaning a warlike or fierce people, but not a distinct race. Dr. Chanca, to whom we owe the best account of the second voyage of Columbus, says that the Caribs occupied three of the Antilles, Guadeloupe, Dominica and Ay-Ay (St. Croix?).

and those who lived in habitations free from cliffs coexisted side by side, in early times, wherever there were caves. The prehistoric West Indian agriculturalists gave Ramon Pane legends of their former cave life, as has been elsewhere pointed out.<sup>8</sup>

The author's search for evidences that the numerous caves in Trinidad were inhabited was not rewarded with success. Several natural caverns near the pumping station, on the road from Port of Spain to Diego Martin's Basin, were explored with a hope that evidences of former habitation might be found in them, but these visits were not successful; and up to the present time, no evidences of cave dwellers has been reported from Trinidad. In Barbados, where there are geological formations that are readily eroded, caves are common and evidences of cave dwellers are not far to seek.

There are evidences that the series of natural caves at Mt. Gilboa in St. Lucy's Parish, Barbados, were inhabited in prehistoric times, and the so-called "Indian Castle," described by the Rev. Griffith Hughes,<sup>9</sup> in 1750, was undoubtedly artificially excavated by the hand of man. This "castle," which lies about three miles to the east of Six Men's Bay, in Barbados, is a remarkable excavation and, if aboriginal, as the author more than suspects, it is the only aboriginal, artificial cave recorded from the Antilles. According to the Rev. Mr. Hughes, prehistoric shell chisels and an idol, which he figures, were found in or near this cave.

An examination of the floors of rock shelters, common in Barbados, has yielded evidences that they were inhabited. Artefacts of aboriginal manufacture have been found near their entrances, showing that they were habitations. The resemblance of these implements to those found in fields indicates that their makers were culturally not very unlike those dwelling near the middens along the lee shore of the same island. Available evidence that the ancient Barbadians lived both in caves and in pit rooms or artificially excavated chambers will be presented in detail in a later publication.

Several other islands of the Lesser Antilles have natural caves where evidences exist of former habitation by prehistoric man. The marks of human tools are not wanting on the walls of these caves, but, thus far, no efforts at systematic exploration of their floors have been made. The following quotation from Father Labat is instructive as showing the use of caves as burial places: "There is to be seen at Désirade, a little island to the windward off the coast of Guadeloupe, a very deep cavern almost full of bones with re-

<sup>8</sup> Cave Dwellings of the Old and New Worlds. *Amer. Anthropologist*. 1900.

<sup>9</sup> The Natural History of the Island of Barbados. By Rev. Griffith Hughes, A.M., Rector St. Lucy's Parish, London, 1750.

mains of bows and clubs and other arms of the ancient Indians; it was apparently a cemetery."

According to an old author, the women of Martinique had caves in which they lived or to which they retired at times. "They have great and strong caves or dens in the ground to which they flee for safeguard in case any men resort unto them at any other time than is appointed, and then defend themselves with bows and arrows." These same caves may be the "holes" to which Davies refers when he writes, "Thus the Arouages are forced (by the Caribs) out of their holes, to fight in the open field or run away." While it is not impossible that some such structures as pit dwellings were referred to in these accounts, the logical conclusion would seem to be that they were caves or rock shelters.

No evidences of cave habitations were found at St. Kitts or St. Croix, but they have been reported from the island of Guadeloupe. In many of the Antilles, caves that once furnished habitations for man became mortuary or religious chambers. The use of caves for religious purposes in the Greater Antilles is well known. The author will instance one cave in the Lesser Antilles in which religious objects have been found although there are several others where mortuary remains have been discovered and therefore connected with ceremonies. This cave<sup>10</sup> is situated in Batowia, an island near Balliceaux, off St. Vincent; it has several niches in the walls one or more of which may have been used for idols. In this cave a sacred seat was found, several years ago, and taken to England, but its present whereabouts is unknown to the author.

*Agricultural Culture.* In almost all the Lesser Antilles the majority of aborigines had either abandoned cave life, and passed into the agricultural stage, or, as is generally the case, the two existed side by side. In those islands where there were no natural caves, it goes without saying that the inhabitants built huts in the open. The natives were agriculturalists and fishermen, including in the latter group those that made the shell heaps and middens, but this agricultural stage was not always uniformly developed; the objects found show diversity in form and degrees of technique and are more or less modified in different islands into typical forms. Certain well-defined subareas can thus be determined by the character of the artefacts which occur in certain islands or clusters of islands.

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<sup>10</sup> This was the cave where the late Mr. Frederick Ober found the wooden turtle mentioned and figured by him in "Camps in the Caribbees," and by the author in his "Aborigines of Porto Rico."



This difference in culture areas in the West Indies, as determined by implements, may be illustrated by a comparison of the aboriginal objects from Porto Rico with those of the Lesser Antilles. Several typical aboriginal objects found in Porto Rico have not been duplicated in any other West Indian island except Haiti, and, conversely, many objects from the other Antilles have not yet been reported from Porto Rico. It may rightly be supposed that the forms of these prehistoric Porto Rico objects were evolved quite independently of those in other islands; and as these characteristic objects do not exist in either North or South America, it is probable that they originated on the islands where they are found. In the same way, many stone objects occur only in the Lesser Antilles, and do not recur on either continent, or on any of the Greater Antilles, which limitation very naturally leads to the conclusion that they also were autochthonous and restricted in origin to the islands where they are found. The archeologist can judge the characteristics of culture only by artefacts, and before he can classify prehistoric cultures in the Lesser Antilles, preceding the advent of the whites, it is necessary to examine large collections from each island, and compare them one with another in order to determine the types peculiar to geographical areas. This is somewhat difficult when the source of specimens is doubtful; and reliable only when large local collections are compared. A study of these shows that different islands of the Lesser Antilles were not uniform in culture, and has led the author to a division of the Lesser Antilles into subareas, based on cultural and geographical data.

The sites of habitations or refuse heaps in the Lesser Antilles are now indicated by middens and shell heaps. Buildings of stone or any form of walled enclosures may have existed but are not known to have been constructed by the aborigines of the Lesser Antilles. Even the stone circles, called ball courts or *batey*,<sup>11</sup> of Porto Rico and Haiti, have not yet been found in these islands. Mr. C. B. Brown, in "Indian Picture Writing in British Guiana," has described one of these *batey*, once supposed to be characteristic of the Antilles, from the Pacarima Mountains in Venezuela, an instructive observation connecting South American and Antillean cultures.

Contiguity to the sea is a necessity for fishermen, and the small inlets that rivers or streams make in the coast would afford good

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<sup>11</sup> The author has been informed that there is an enclosure that may have been of this nature in Carriacou, but he has not visited it.



fishing as well as fresh water.<sup>12</sup> Another reason for dwelling near the streams is given by Davies, in the following lines: "The inhabitants of the Caribbees are also desirous to be somewhat near springs, brooks and rivers because of their washing themselves every morning before they put the red paint on their bodies."<sup>13</sup>

Two kinds of houses, known as the secular and religious, were constructed by the aborigines of the West Indies, as is almost universally the case with man in primitive stages of culture. The latter served as the habitation of the head medicine man, or chief, but was also the god house or place where the idols (Zemes) were kept. It was generally larger than the other dwellings and occupied a more central position, the huts of the remaining people being commonly grouped about it. As these houses are described by many authors, one of the best, that from Labat, will serve to show their character: "Each family" he says, "composes its own hamlet, for the father of a family has his house where he lives with his unmarried children and wives, all the other children who are married have their establishment and their respective houses. They build one house common to all, called a carbet, which has a length of sixty or eighty feet, and is constructed of forked boughs, eighteen or twenty feet high, planted in the ground every twelve feet. They lay over these, branches of the latimer or other trees, perfectly straight, which answer as a plate on which they place the rafters extending down until they touch the earth; these they cover with reeds or the leaves of the Bourbon palm; so that it renders the interior of the carbet quite obscure, for no light enters except through the front door, which is low and only allows one to enter by bending down. The boys keep the carbet clean and sweep out the house and surrounding plaza. The girls and women clean their houses, [the men and boys the sacred house.] At the side of this carbet there is one special door by which the priest enters when his god calls him: he alone is allowed to pass this door."

The aboriginal villages of the West Indian agriculturalists, the sites of which are now indicated by middens, were probably not unlike those in Guadeloupe, described as follows:

"Here they found innumerable villages of twenty or thirty houses, at most, set round about an open space, like a market place." "And forasmuch," says Peter Martyr, "as I have made mention of their houses, it shall not be greatly from my purpose to describe

<sup>12</sup> While it is not unusual to find evidences of village sites situated inland, from necessity they rarely occur very far from fresh water, and are generally on the coast.

<sup>13</sup> The early accounts generally state that the Caribs were painted by their women.

in what manner they were builded. They were made round like bells or round pavilions, their frame is raised of exceedingly [high] trees set close together and inserted in the ground, so standing aslope and bending inward that the top of the trees join together and bear one against another, having also within the house certain strong and short posts, which sustain the trees from falling. They cover them with the leaves of date[?] trees, and other trees strongly compact and hardened wherewith they make them close from wind and weather. To the short posts or props within the house they tie ropes of the cotton or gorsapine trees, or other ropes." . . . "At the entrance of one of the houses they found two wooden statues, with serpents wreathing round their feet, and they found looms, in which the natives wove a sort of carpet, and all kinds of earthen vessels."

The sites of these villages are now indicated by low mounds or middens, sections of which are often revealed by encroachments of the sea or by streams flowing near them.

As skeletons sometimes occur in these sites, reference to burial customs may be mentioned here. The ancient Antilleans buried their dead in a contracted (embryonic) posture, often in the floors of the houses; and we have an early record of a chief of Dominica who was buried in the middle of his dwelling; after which the house was abandoned. The natives were accustomed to make the grave in the same house where the person died, or in a new house built for that purpose. The dead were sometimes seated on their heels, the two elbows on the two knees, the head resting in the palms of the two hands. The author has found burials in the Carib cemetery at Banana Bay, in the island Balliceaux,<sup>14</sup> in the same position as above described by Labat. It was customary to deposit mortuary offerings in the graves, which accounts for the pottery and other objects found by the author in the Balliceaux cemetery. The middens are commonly composed of thin layers of ashes with charcoal in which are scattered shells of mollusks, clams, pottery fragments, broken stone implements, and other objects of stone, shell or bone. These refuse heaps have shells scattered through them, but shells predominate only when the people who constructed them used mollusks for food, true shell heaps being composed almost entirely of shells, although containing rejects, as abandoned implements or utensils.

The author found a few true shell heaps in the Lesser Antilles,

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<sup>14</sup> After the Carib war in St. Vincent, the Black Caribs were first removed to this island and later transported to Roatan, on the north coast of Honduras.

but one at Erin Bay (near where Columbus landed) in Trinidad was large and yielded many objects similar, with the exception of the pottery, to those found in South America.

On a mound situated on a marl hill, supposed to be the site of a former village in the northern part of Barbados, there were broken fragments of pottery, and very little else, most of the mound, which was formerly a midden, having been largely washed away.

*Artefacts.* Artefacts, from the West Indian islands visited by the author, consist of stone implements, pottery, carved shell and bone and other objects. They have a marked difference, especially the stone implements, in different areas or groups of islands. There is not only a difference in the stone of which the implements are made, but also variations in their forms. This localization of stone implements was noticed especially in St. Vincent, St. Kitts, and Santa Cruz. Certain forms of implements, as the almond-shaped celts, are found throughout the whole extent of the Greater Antilles, Porto Rico, Haiti, and Eastern Cuba, where they constitute 90 per cent. of all the stone objects. These petaloid and almond-shaped stone implements occur almost universally in the Lesser Antilles from Santa Cruz to St. Vincent, becoming less abundant on the southern islands, where the proportion has dwindled to 10 per cent. or less. Here, on the other hand, the proportion of axes with blunt or winged heads, a form not occurring in the northern region, has increased to 90 per cent. of all the stone implements.

Pottery with handles in the form of bizarre heads occur from Porto Rico to Trinidad, appearing universally in all the islands.<sup>15</sup> The pottery found in each group of islands is distinctive; that from Porto Rico, for example, differs from that of the volcanic islands, and the St. Kitts style is unlike that from Trinidad, the Grenadines or Barbados.

Pottery and basket making as now practiced by the natives of several of the Antilles are lineal descendants of Indian arts and often Indian names are retained by modern potters. At present the potter's wheel is not used and pottery is baked by modern natives in much the same way as by the Indians, several centuries ago. Wherever the clay is suitable, the potter's art is still practiced and fair products are now sold generally in some corners of the open market places. Not only has the art of pottery-making been transmitted by the aborigines but also prehistoric forms and decorations

<sup>15</sup> At Nevis, for instance, the aboriginal styles and ornamentation are still preserved by the present natives.



have been preserved. Although the character of pottery and its decorations vary somewhat from island to island,<sup>16</sup> our collections are not as yet ample to differentiate one from another. We find the prevailing colors are red and white and sometimes brown, but a glazed fragment has yet to be seen. The decorations are generally incised or in high relief.

The so-called "monkey" goblet, or vase with a tubular snout appended to one side, is a good example of a form lineally descended from an aboriginal pattern. Several prehistoric specimens of these, somewhat modified, are known from collections made in Barbados and St. Kitts. The handles are somewhat differently arranged from those on typically modern monkey vases, but the essential snout, resembling that of a modern teapot, is always present.<sup>17</sup> The human face, heads of birds, and reptiles, especially the turtle,<sup>18</sup> are constantly represented on handles and effigy vases from the Little Antilles.

A study of types of implements, stone or shell, and the variations in form and decoration of pottery have led the author to classify the aboriginal cultures of the Lesser Antilles as follows:

1. Barbados is culturally as well as geologically and, in a manner, biologically a distinct archeological culture area.

2. Prehistoric objects from Trinidad and Tobago archeologically resemble those from the north coast of South America.

3. The archeological objects from the volcanic islands from Grenada to the Anegada passage are divided into two groups, one of which is illustrated by the beautiful collection from St. Kitts, made by Mr. Connell; the other by numerous objects from St. Vincent. These indicate two cultural areas in this geographical area.

4. Santa Cruz and St. Thomas have cultural resemblances in their antiquities to the Porto Rican or Jamaican area.<sup>19</sup>

*Carib Culture.* The materials indicating the so-called Carib culture cannot be distinguished from those of the agricultural people of the volcanic islands of the Lesser Antilles, although their mentality is characteristic. The Caribs are regarded by the author as having originated from a preexisting agricultural people, who lived much the same as the agriculturalists from which they sprang; but

<sup>16</sup> Bowls, vases and jars from Trinidad and the Grenadines have a raised base or appended ring which do not occur in the northern islands.

<sup>17</sup> The author obtained from the natives of Nevis, who are fairly good potters and expose their wares for sale on the quay at St. Kitts on market days, a "monkey" vase almost identical with the aboriginal. The saucer of this vase, like the aboriginal, is ornamented with finger tips and both pieces closely resemble pottery found in middens of St. Kitts.

<sup>18</sup> The frequency with which turtles and their heads occur on ancient pottery handles and effigy bowls suggests that this animal was widely worshipped, as it naturally would be, being a common food of the aboriginal people.

<sup>19</sup> A close comparison of these areas can be shown only by technical descriptions and figures which are not practicable in this article.



they were great warriors and were hostile to their ancestors. Archeologically the objects belonging to them are not characteristic of Caribs as such, although each group of islands has a distinctive form of implement and characteristic pottery. Sir Everard F. im Thurn, relying in part on traditions to that effect, derives the Guiana Caribs from the insular. The South American Arawaks, he says, speak of incursions of Caribs from the islands, not from up the Orinoco River. According to Brett, the Warrau maiden, Korotona, gave birth to a being of human serpent form, who afterwards became the first Carib, thus making the Caribs descended from the Warrau. There is a tradition among the Arawak that the Carib tribe in former ages lived in the island to the north (Lesser Antilles).

*Effect of Environment on Culture in the Lesser Antilles.* The culture of man in the Lesser Antilles follows a general law and is largely the result of two causes, heredity and environment. Certain fundamental traits of culture that have possibly originated under other conditions have been modified or completely changed by the necessity of early ancestral colonists conforming to a new environment; others have not been changed owing to conservative tendencies and have remained more like those from which the race sprang. Among the latter traits may be mentioned languages, mythologies, and especially anatomical features. Among the mutable characters are those productions ordinarily indicated by the material culture. Roughly speaking, the volcanic islands were inhabited by Caribs, and, as these volcanoes were frequently in a state of activity, they were a constant menace and profoundly affected the culture of these people, often driving them to make inroads on islanders who were agriculturalists and had their homes on more stable islands. We know that, when circumstances or sociologic conditions change, insular men are driven to migrate from their homes into new lands beyond the seas and that these emigrants are naturally attracted to places where their former environment is most closely reproduced. This is one reason why there is a close relation between geographic environment, fauna, and flora of islands and human cultures. The migration of man is partly governed by the same laws as those governing animals and plants; but in casting about for a home, migratory man chooses, as far as possible, a habitat like that he has left; migrating animals and plants have not the choice, but they naturally survive under conditions like those they left in preference to new conditions to which they are not acclimated. It takes a long time and means changes amounting to specific differences, for a plant or animal to become acclimated, but man can

change his culture to meet the requirements of a new environment, although it also takes a long time for him to develop such cultural differences. Hence the difference in artefacts found in different islands of the Lesser Antilles indicates a long continued residence.

The stability of a non-volcanic island is conducive to a peaceful agricultural life rather than warlike mental tendencies. Under these conditions man has no incentive to raid his neighbor; but a volcanic island, with an eruption every three or four generations, develops and fosters the marauding spirit. As long as there was an incentive in physical conditions, due to volcanism, the inhabitants kept up warlike habits and marauding tendencies persisted.

Hurricanes, as well as volcanic disturbances, have often driven the so-called Caribs to raid other islands for food. Iñigo (p. 120), in giving the results of the hurricane in Porto Rico in 1530, ascribes the failure of food in that year as the cause of a raid on Porto Rico of the Dominica Caribs under Jaurebo; and there is every reason to suppose that frequent raids took place in prehistoric times for the same reason that Jaurebo made this incursion.

A study of the Antillean culture shows that some of these islands have changed their physical conditions,<sup>20</sup> while inhabited by man, to such an extent as to affect the food supply at times and this economic change has led to migrations and consequent modifications in culture. A small island will support a population up to a certain number, but when that population increases beyond a limit several things may occur. First, the inhabitants may invent a new method of increasing the food supply that the island yields, or, second, a migration of the surplus population to other islands may take place, either in the form of colonization or predatory expeditions. The so-called "Carib islands" are as a rule volcanic, and these volcanoes have been so often active that their frequent eruptions became a menace to agriculturalists. Each eruption not only killed many natives but also, by covering the fields with ashes and lava, destroyed the food supply of many others. At the time of such a calamity the survivors were naturally forced to obtain a food supply elsewhere, which led them to raid the neighboring islands. Continued catastrophes, from generation to generation, may even have permanently modified the mentality of the inhabitants of volcanic islands, affording an instructive example of the psychic influence of environment. When a renegade band had overcome the inhabitants of one of the islands it obtained a footing

<sup>20</sup> The eruption of the Soufrière in St. Vincent in 1903 devastated the whole "Carib community" and almost blotted out the race in that island.

from which to make excursions to others, for plunder. As some of the smaller of these islands seemed to be depopulated by men, who were really absent on distant marauding excursions, it is natural to say, as some of the early explorers did, that they were inhabited by women only.

The agricultural people of the islands are probably those of whom Davies writes: "These Arouages then are the people whom our Islanders (Dominica Caribs?) go and find out in their own country, commonly twice a year, to be revenged on them as much as they can. And it is to be observed on the other side, that the Arouages never make any attempt on the Caribees of the Islands, in the islands where they live, but only stand on the defensive; whereas they are sure to have our savages among them oftener than they wish, coasting along, as they are wont to do, all the other islands wherein they have Gardens, or Colonies, though the furthestmost of the Caribby islands, which is Santa Cruz, is distant from the Country <sup>21</sup> of the Arouages about three hundred leagues."

The so-called insular and continental Caribs of South America are said to have linguistic similarities, but this likeness does not prove that the two have a close consanguinity. All depends on the relationship of the mothers or the women whom the Caribs in the two regions married and by whom they had children. We hear very little of them except that they spoke a different language from their lords and the probability is that they never spoke Carib. If so, their children are not Caribs but products of another stock. Marriage outside the race early gave rise to the union of African slaves wrecked on the island Bequia, and the yellow "Caribs" of St. Vincent. Although the inhabitants of Guadeloupe, Dominica, Martinique, and St. Vincent are preeminently called insular Caribs, they cannot be the same racially as the Caribs of the Orinoco, but both may be a modified type of mixed character, one of which was peculiar to the islands where they were evolved; the other to South America, but belonging to a related linguistic stock.

Man does not, as a rule, migrate from a home in which he has become acclimated simply for a change, but is generally driven by scarcity of food to seek a home where conditions are like those which he has left. This food quest and the desire to better their condition are the most potent causes that have impelled men to migrate.

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<sup>21</sup> The country of the Arawak here referred to may be Cuba, Porto Rico, Haiti, or South America.







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